II. AMENDMENTS TO THE CLAIMS

The following listing replaces any and all prior listings of the claims:

1. (Currently amended) A computer-implemented security system for securing an electronic version of a nucleotide chain sequence, wherein the nucleotide chain sequence comprises at least a portion of a genome of an organism, the system comprising:

a computer hardware apparatus; and

a computer program that, when loaded and executed, controls the computer hardware apparatus such that it carries out:

~~at least one processing unit;~~

~~memory operably associated with the at least one processing unit; and~~

~~a security system storable in memory and executable by the at least one processing unit, the security system comprising:~~

~~a system for~~ identifying ~~all coding~~ exons and introns ~~non-coding regions~~ in the nucleotide chain sequence;

~~a system for~~ selectively encrypting the sequence of only the ~~coding regions~~ exons identified in the nucleotide chain to provide security over a network; and

~~a system for~~ outputting the electronic version of the nucleotide chain sequence, including the encrypted exons ~~coding regions~~ and the unencrypted ~~non-coding regions~~ introns, wherein the encrypted exons ~~coding regions~~ are decrypted ~~require decryption~~ by a secure process to ~~recreate~~ regenerate the nucleotide chain sequence.

2. (Currently amended) The computer-implemented security system of claim 1, wherein the system for outputting further comprises a system for transmitting encrypted exons ~~coding regions~~ and unencrypted ~~non-coding regions~~ introns.

3. (Currently amended) The computer-implemented security system of claim 2, wherein the system for transmitting encrypted exons ~~coding regions~~ and unencrypted ~~non-coding regions~~ introns includes at least one XML document.

4. (Currently amended) The computer-implemented security system of claim 2, wherein the system for transmitting encrypted exons ~~coding regions~~ and unencrypted ~~non-coding regions~~ introns includes web services.

5. (Currently amended) The computer-implemented security system of claim 1, wherein the system for selectively encrypting only the exons ~~coding regions~~ utilizes cipher block chain encrypting.

6. (Currently amended) The computer-implemented security system of claim 2, further comprising:

a system for receiving the encrypted exons ~~coding regions~~ and unencrypted ~~non-coding regions~~ introns;

a system for decrypting the encrypted exons ~~coding regions;~~ and

a system for regenerating the nucleotide chain from the decrypted exons ~~coding regions~~ and unencrypted ~~non-coding regions~~ introns.

7. (Currently amended) The computer-implemented security system of claim 6, wherein the system for receiving the encrypted exons ~~coding regions~~ and unencrypted ~~non-coding regions~~ introns comprises a bioinformatics database for receiving nucleotide chain queries.

8. (Currently amended) A method for transmitting a nucleotide chain sequence, wherein the nucleotide chain sequence comprises at least a portion of a genome of an organism, the method comprising:

identifying ~~all coding~~ exons and ~~non-coding regions~~ introns in the nucleotide chain sequence;

selectively encrypting only the exons ~~coding regions~~ identified in the nucleotide chain to generate encrypted exons ~~coding regions~~ and unencrypted ~~non-coding regions~~ introns;

transmitting the encrypted exons ~~coding regions~~ and unencrypted ~~non-coding regions~~ introns;

receiving the encrypted exons ~~coding regions~~ and unencrypted ~~non-coding regions~~ introns;

decrypting the encrypted exons ~~coding regions~~;

regenerating the nucleotide chain sequence from the decrypted exons ~~coding regions~~ and unencrypted ~~non-coding regions~~ introns; and

outputting the regenerated nucleotide chain sequence.

9. (Canceled)

10. (Previously presented) The method of claim 8, comprising the further step of querying a bioinformatics database with the received nucleotide chain sequence.

11. (Currently amended) The method of claim 8, wherein the encrypted exons ~~coding regions~~ and unencrypted ~~non-coding regions~~ introns are transmitted in at least one XML document.

12. (Currently amended) The method of claim 8, wherein the encrypted exons ~~coding regions~~ and unencrypted ~~non-coding regions~~ introns are transmitted using web services.

13. (Currently amended) The method of claim 8, wherein the step of selectively encrypting only the exons ~~coding regions~~ utilizes cipher block chain encrypting.

14. (Currently amended) A program product stored on a recordable medium for encoding a nucleotide chain sequence, wherein the nucleotide chain sequence comprises at least a portion of a genome of an organism, the program product comprising:

means for identifying ~~all coding~~ exons and ~~non-coding regions~~ introns in the nucleotide chain sequence;

means for selectively encrypting only the exons ~~coding regions~~ identified in the nucleotide chain sequence to provide security over a network; and

means for outputting the encrypted exons ~~coding regions~~ and the non-encrypted ~~non-coding regions~~ introns over the network, wherein the encrypted exons ~~coding regions~~ are decrypted ~~require decryption~~ by a secure process to ~~recreate~~ regenerate the nucleotide chain sequence.

15. (Currently amended) The program product of claim 14, wherein the encrypted exons ~~coding regions~~ and unencrypted ~~non-coding regions~~ introns are stored in at least one XML document.

16. (Currently amended) The program product of claim 14, wherein the means for selectively encrypting only the exons ~~coding regions~~ utilizes cipher block chain encrypting.

17. (Currently amended) A program product stored on a recordable medium for decoding an encoded nucleotide chain, wherein the nucleotide chain sequence comprises at least a portion of a genome of an organism, the method comprising:

means for identifying encrypted exons ~~coding~~ and unencrypted ~~non-coding regions~~ introns in the encoded nucleotide chain sequence;

means for selectively decrypting only the exons ~~coding regions~~ identified in the encoded nucleotide chain sequence;

means for reassembling the ~~coding~~ exons and ~~non-coding regions~~ introns to generate a decoded nucleotide chain sequence; and

means for outputting the decoded nucleotide chain sequence.

18. (Currently amended) The program product of claim 17, wherein the exons ~~coding regions~~ and ~~non-coding regions~~ introns are stored in at least one XML document.

19. (Currently amended) The program product of claim 17, wherein the means for selectively decrypting only the exons ~~coding regions~~ utilizes cipher block chain decrypting.

20. (Previously presented) The program product of claim 17, further comprising means for querying a bioinformatics database with the decoded nucleotide chain sequence.